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Federal Communications Commission  
Office of Secretary

May 22, 1997

Mr. William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, N.W., Room 222  
Washington, D.C. 20554

**Re: Notice of Ex Parte Presentation  
CC Docket No. 96-98**

Dear Mr. Caton:

Pursuant to Section 1.206 of the Commission's Rules, it is hereby noted that on May 21, 1997, Bob Wellborn and Marybeth Banks of Sprint, John Ruja and Len Sawicki of MCI, Frank Simone of AT&T, Doug Kinkoph of LCI, and I, collectively representing the Local Competition Users Group, had three separate meetings with FCC officials to discuss the attached document regarding Service Quality Measurements for Operational Support Systems. The first meeting was with Kalpak Gude and Lisa Gelb of the Common Carrier Bureau's Policy and Program Planning Division. The second meeting was with John Nakahata and Tom Koutsky of the Competition Division of the General Counsel's Office, and the third meeting was with Ken Moran and Janice Jamison with the Common Carrier Bureau's Accounting and Audits Division.

An original and one copy of this notice are being submitted to the Secretary's office. Please contact me in the event of any questions regarding this matter.

Sincerely,

A handwritten signature in dark ink, appearing to read "Richard L. Fruchterman, III".

Richard L. Fruchterman, III  
Director of Government Affairs

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# ***LOCAL COMPETITION USERS GROUP***

## ***(LCUG)***

# ***SERVICE QUALITY MEASUREMENTS (SQM)***

**Verison 4**

*Membership: AT&T, Sprint, MCI, LCI, WorldCom*

***LOCAL COMPETITION USERS GROUP  
(LCUG)***

***SERVICE QUALITY MEASUREMENTS (SQM)***

May 22, 1997

*Membership: AT&T, Sprint, MCI, LCI, WorldCom*

# **LCUG Service Quality Measurements (SQMs)**

## **TABLE OF CONTENTS**

|   |                     |
|---|---------------------|
| <b>Table of contents</b>                                      | <b>Page 2</b>       |
| <b>Introduction</b>   | <b>Page 3-4</b>     |
| <b>Pre-Ordering (PO)</b>                                      | <b>Page 5</b>       |
| <b>Ordering and Provisioning<br/>(OP)</b>                     | <b>Pages 6 - 8</b>  |
| <b>Maintenance and Repair</b>                                 | <b>Pages 9 - 10</b> |
| <b>General (GE)</b>   | <b>Page 11</b>      |
| <b>Billing (BI)</b>   | <b>Page 12</b>      |
| <b>Directory Assistance and<br/>Operator Services (DA)</b>    | <b>Page 13</b>      |
| <b>Network Performance (NP)</b>                               | <b>Page 14</b>      |
| <b>Interconnect / Unbundled<br/>Elements and COMBOS (IUE)</b> | <b>Page 15 - 17</b> |
| <b>Formula Quick Reference<br/>Guide</b>                      | <b>Page 18 - 23</b> |

# LCUG Service Quality Measurements (SQMs)

## *Introduction*

### **Background:**

On August 8, 1996, the Commission released its First Report and Order (the Order) in CC Docket No. 96-98 (Implementation of the Local Competition Provisions of the Telecommunications Act of 1996). The Order established regulations to implement the requirements of the Telecommunications Act of 1996. Those regulations are intended to enable potential competitive local exchange carriers (CLECs) to enter and compete in local telecommunications markets. The Commission found that nondiscriminatory access to operations support systems ("OSS") of incumbent local exchange carriers ("ILECs") was essential to successful market entry by CLECs. Access to operational support systems was to occur by January 1, 1997. Many variations of interim OSS graphic user interfaces ("GUIs") and electronic gateways have been or are being installed by the ILECs. These interim systems have not provided the capability for the CLECs to provide the same customer experience for their customers as the ILECs do for theirs. The timeliness and accuracy of information processed by the ILEC for pre-ordering, ordering and provisioning, maintenance and repair, unbundled elements, and billing have been less than the expected levels of service. This lack of service delivery does not differ between provisioning method, whether it is simply buying existing services on a wholesale basis to be resold or interconnection utilizing unbundled elements. Final solutions for application-to-application real time system interfaces are evasive because of the complexity, the diversity of commitment schedules to implement them and the lack of industry guidelines.

On February 12, 1997, the Local Competition Users Group (LCUG) issued their "Foundation For Local Competition: Operations Support Systems Requirements For Network Platform and Total Services Resale." The core principles are: Service Parity, Performance Measurement, Electronic Interfaces, Systems Integrity Notification of Change, and Standards Adherence. Each of these are significant to ensure that CLEC customers receive equal levels of service to those of ILEC customers. The LCUG group indicated that it was essential that a plan be developed to measure ILECs performance for all the essential OSS categories, e.g., pre-ordering, ordering and provisioning, maintenance and repair, network performance, unbundled elements, operator services and directory assistance, system performance, service center availability and billing. To that end, an LCUG sub-committee was formed to address measurements and metrics. The following document is the result of that activity. A comprehensive list of all measurements was initially developed and distributed to the team members for review. Each committee member was then assigned a section to investigate and propose recommendations back to the group. The group discussed each measurement and used present measurements criteria contained in regulatory requirements or good business practices to determine the final item and classes of service to be measured. The service quality measurement (SQM) goal was difficult to set because the group lacked historical trended data from the ILECs. The ILECs have been reluctant to share current performance over the past 12-18 months. The goals were drawn from best of class and/or good business practices. The SQM goal may change as the ILECs start sharing historical as well as actually self-reporting data benchmark by the ILEC, the CLEC, and the CLEC industry on a going forward basis.

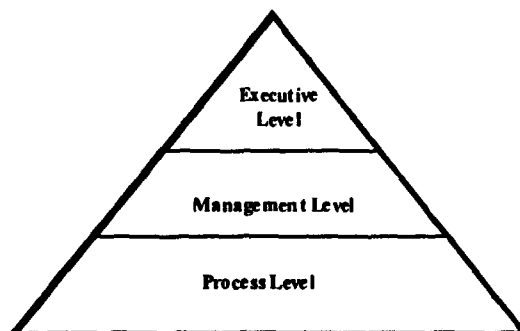
# LCUG Service Quality Measurements (SQMs)

## Measurement Plans:

A measurement plan must incorporate at least the following characteristics: 1) provide statistically valid and independently verifiable comparisons of the CLEC and CLEC industry experience to that of the ILEC; 2) account for potential performance variations due to differences in service and activity mix; 3) measure not only service measurements but also measures directed at UNEs in general and OSS interfaces; and 4) produce results which demonstrate the nondiscriminatory access to OSS functionality is being delivered across all interfaces and a broad range of resold services and unbundled elements. The measures must address interface availability, timeliness of execution, and accuracy of execution.

It is essential that the CLECs be able to determine that they are receiving equal treatment to that provided to the ILEC and its affiliates. Benchmarks and performance standards that are adopted by the CLECs and ILECs or ordered by commissions and reported will determine whether new service providers are receiving nondiscriminatory treatment. Benchmark comparisons should be self reported by the ILEC and reflect CLEC performance, ILEC performance and CLEC industry performance.

The measurements contained within this document addresses metrics at the executive level. There are several other levels of measurements that are used for the day-to-day activities as illustrated by the following simple diagram.



## Process Improvement:

In addition to the actual reporting of measurements there must be a commitment to take corrective action when poor performance or non-parity situations are identified. The ILECs need to self-report all measurements and analyze the results. Root cause analysis must be conducted and corrective actions taken to improve results or resolve issues. Corrective action steps, schedules and milestones should be developed by the ILEC and CLEC as appropriate to ensure timely implementation of corrective steps.

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## PRE-ORDER (PO)

| Function   | Measurement Objective  | Proposed Service Quality Measurement   |
|--|--|--|
| Timeliness of Providing Pre-Ordering Information | Measures the ILEC response time to a query for appointment scheduling, service & feature availability, address verification, request for Telephone Numbers (TNs) and Customer Service Records (CSRs). The query interval starts with the request message leaving the CLEC and ends with the response message arriving at the CLEC. | <p>≤2 seconds from the time the query is launched until the following data is received back (98% ≤2 sec &amp; 100% ≤ 5 sec):</p> <ul style="list-style-type: none"> <li>• Due Date Reservation</li> <li>• Feature Function Availability</li> <li>• Facility Availability</li> <li>• Street Address Validation</li> <li>• Service Availability Information</li> <li>• Appointment Scheduling</li> <li>• Customer Service Records</li> <li>• Telephone Number Assignments:               <ol style="list-style-type: none"> <li>1. ≤30 TNs ret'd in ≤ 2 sec 98% of time &amp; ≤ 5 sec 100% of time,</li> <li>2. &gt; 30 TNs ret'd &lt; 2 hours 100% of time</li> </ol> </li> </ul> <p><b>PO-1</b><br/> <math display="block">\frac{\text{\# of Responses Received on time}}{\text{Total \# of Queries Sent}} \times 100</math></p> <p><b>PO-2</b><br/> Mean Cycle Time</p> |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## ORDERING AND PROVISIONING (OP)

| Function                                    | Measurement Objective   | Proposed Service Quality Measurement   |
|---|---|--|
| Orders completed within specified intervals | Measures the percentage and mean completion interval of orders (installation, feature change, service disconnect) completed with a requested due date that is equal or less than the interval specified in the Service Quality Measurements column. | <p>Unless specified below, orders with no Premises Visit or no physical work involved completed within 1 day of service order receipt *; orders that require Premises Visit or physical work: completed within 3 days of service order receipt *; 99% orders completed on due date *.</p> <p><b>Installation:</b></p> <ul style="list-style-type: none"> <li>• UNE Platform (at least DS0 loop + local switch + all common elements) always within 24 hours, regardless of dispatch</li> <li>• UNE Channelized DS1 (DS1 loop + multiplexing) always within 48 hours</li> <li>• Unbundled DS0 loop always within 24 hours</li> <li>• Unbundled DS1 loop (unchannelized) always within 24 hours</li> <li>• Other Unbundled Loops always within 24 hours</li> <li>• Unbundled Switch always within 48 hours</li> <li>• Dedicated Transport - DS0/DS1 always within 3 business days</li> <li>• Dedicated Transport - DS3 always within 5 bus days</li> </ul> <p><b>Feature Changes:</b></p> <ul style="list-style-type: none"> <li>• All orders completed within 5 business hours of receipt</li> </ul> <p><b>Disconnects:</b></p> <ul style="list-style-type: none"> <li>• Resale Product or Svc Disconnects always within 24 hrs</li> <li>• UNE switching within 24 hours</li> <li>• UNE (other) within 24 hours</li> </ul> <p><b>OP - 1</b><br/> <math display="block">\frac{\text{\# of Orders Completed on Time}}{\text{Total \# of Orders Completed}} \times 100</math></p> <p><b>OP - 2</b><br/> Mean Completion Time</p> |

\* Reported for the following types of service or facility: Resold POTS, Resold ISDN, Resold Centrex/Centrex-like, Resold PBX trunks, Resold Channelized T1.5 Service, Other Resold Services, UNE Platform (at least DS0 loop + local switch + transport elements), UNE Channelized DS1 (DS1 loop + multiplexing), Unbundled DS0 loop, Unbundled DS1 loop, Other Unbundled loops, Unbundled Switch, Other UNEs

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## ORDERING AND PROVISIONING (OP) (con'd)

| Function       | Measurement Objective   | Proposed Service Quality Measurement   |
|----------------|---|--|
| Order Accuracy | Measures the accuracy and completeness of the ILEC provisioning or disconnecting service by comparing what was ordered & what was completed   | <p><math>\geq 99\%</math> are completed without error</p> <p><b>OP-3</b><br/> <math display="block">\frac{\text{\# of Orders Completed w/o error}}{\text{Total \# of Orders Sent}} \times 100</math></p>   |
| Order Status   | <p>Measures the response time (by percentage and mean time) for: Firm Order Confirmations (C-FOCs and D-FOCS *), Jeopardize / revised due date, Rejects, and Completions from the time an order is sent to the ILEC until a status is received</p> <p><b>*C-FOC: accepted, no change</b><br/> <b>D-FOC: does not match due date</b></p> | <ul style="list-style-type: none"> <li>• FOC: <math>100\% \leq 4</math> hrs</li> <li>• Jeopardies/revised due date: <math>100\% \leq 4</math> hours</li> <li>• Rejects: <math>\geq 97\%</math> in <math>\leq 15</math> seconds</li> <li>• Order Completions: <math>\geq 97\%</math> received within 30 min of order completion</li> </ul> <p><b>OP-4</b><br/> <math display="block">[\text{\# of FOCs returned} + (\text{Total \# of Orders Sent}) - \text{Rejects Returned}] \times 100</math></p> <p><b>OP-5</b><br/> <u>Mean Time to Return FOC</u></p> <p><b>OP-6</b><br/> <math display="block">[\text{\# of D\_FOCs returned in } \leq 4 \text{ hours} + (\text{Total \# of Orders sent} - \text{Rejects Returned})] \times 100</math></p> <p><b>OP-7</b><br/> <u>Mean Time to Return D-FOCS</u></p> <p><b>OP-8</b><br/> <math display="block">(\text{\# of Rejects returned in } \leq 15 \text{ seconds}) + (\text{Total \# of Rejects Returned}) \times 100</math></p> |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## ORDERING AND PROVISIONING (OP) (con'd)

| Function         | Measurement Objective  | Proposed Service Quality Measurement  |
|------------------|--|---|
|                  |  | <p><b>OP-9</b><br/><u>Mean Time to Return Rejects</u></p> <p><b>OP-10</b><br/>Jeopardies returned w/i 70% of allotted order time + Total # Jeopardies Returned</p> <p><b>OP-11</b><br/>(# of Completions returned in <math>\leq 30</math> minutes) + (Total # Completed Orders) x 100</p> <p><b>OP-12</b><br/>Mean Time to Return Completion</p> <p><b>OP-13</b><br/>Jeopardies<br/>(Total C-FOCS -Total Rejects)</p> |
| # of Held Orders | Tracks the percentage and number of held orders within specified intervals | <p>Report for:<br/> <math>\geq 15</math> days, <math>\leq 0.1\%</math><br/> <math>\geq 90</math> days, = 0%</p> <p><b>OP-14</b><br/>(# of Orders Held for <math>\geq</math> "x" days) + (Total # of Orders Sent to ILEC in the past "x" days) x 100<br/> where "x" = 15 or 90 days</p> <p><b>OP-15</b><br/>Mean Time of Orders Held Prior to Completion</p>   |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## MAINTENANCE / REPAIR (MR)

| Function              | Measurement Objective   | Proposed Service Quality Measurement   |
|-----------------------|---|--|
| Time to Restore (TTR) | <p>Measures the percent of restorals made by product and service within 24 hours or less*</p> <p><i>Measures the mean time that it takes for the ILEC to resolve customer troubles*</i></p> | <p><b>Out of Service No Dispatch</b></p> <p>≥ 85% in 2 hrs</p> <p>≥ 95% in 3 hrs</p> <p>≥ 99% in 4 hrs</p> <p><b>All other Troubles</b></p> <p>≥ 95% in 24 hrs <b>Dispatch Required</b></p> <p>≥ 90% in 4 hrs</p> <p>≥ 95% in 8 hrs</p> <p>≥ 99% in 16 hrs</p> <p><b>MR-1</b></p> <p><math display="block">\left( \frac{\text{\# of Troubles Restored Within "x" hours}}{\text{Total \# Troubles}} \right) \times 100</math> <i>where "x" = 2,3,4,8,16, or 24 "running clock" hours</i></p> <p><u>Mean Time to Restore reported for ILEC and CLEC, for dispatch required and no dispatch required</u></p> <p><b>MR-2</b></p> <p><math display="block">\frac{\text{Total \# of Trouble Minutes}}{\text{Total \# of Trouble Reports}}</math></p> |
| Repeat Troubles       | Measures the frequency of recurring customer trouble on the same line, circuit or service*  | <p>≤ 1% within 30 days*</p> <p><b>MR-3</b></p> <p><math display="block">\frac{\text{\# of telephone lines reporting } \geq 2 \text{ troubles in the current report month}}{\text{Total number of troubles in the current report month}}</math></p>   |

\* Reported for the following types of service or facility: Resold POTS, Resold ISDN, Resold Centrex/Centrex-like, Resold PBX trunks, Resold Channelized T1.5 Service, Other Resold Services, UNE Platform (at least DS0 loop + local switch + transport elements), UNE Channelized DS1 (DS1 loop + multiplexing), Unbundled DS0 loop, Unbundled DS1 loop, Other Unbundled loops, Unbundled Switch, Other UNEs

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## MAINTENANCE / REPAIR (MR) (con'd)

| Function  | Measurement Objective  | Proposed Service Quality Measurement  |
|---|--|---|
|   |  | This includes those lines, circuits, or services with a second trouble ticket coded out as CC (Came Clear), CO (central office), FAC (Facility) or STA (station) that follow an initial ticket coded out as Any found or Non-found disposition. |
| Troubles Per 100 Lines                            | Measures the frequency of troubles reported within the ILEC's network *  | $\leq 1.5$ per month*<br><br><b>MR-4</b><br>(# of Initial & Repeated Trouble Reports per exchange per month) + (Total # of Lines per exchange) x 100  |
| Estimated Time to Restore (Appointments Met) ETTR | Measures the compliance of restoring service within the time estimated to the CLEC, reported for premises visits required and premises visit not required* | $\geq 99\%$ *<br><br><b>MR-5</b><br>(# of Customer Trouble Appointments Met + Total # Customer Trouble Appointments) x 100  |

\* \*Reported for the following types of service or facility: Resold POTS, Resold ISDN, Resold Centrex/Centrex-like, Resold PBX trunks, Resold Channelized T1.5 Service, Other Resold Services, UNE Platform (at least DS0 loop + local switch + transport elements), UNE Channelized DS1 (DS1 loop + multiplexing), Unbundled DS0 loop, Unbundled DS1 loop, Other Unbundled loops, Unbundled Switch, Other UNEs

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## GENERAL (GE)

| Function              | Measurement Objective  | Proposed Service Quality Measurement  |
|-----------------------|--|---|
| Systems Availability  | Measures the availability of operations support systems and associated interfaces (for pre-ordering, ordering and provisioning, maintenance) | <p><math>\leq 0.1\%</math> unplanned downtime per month, reported for each interface:</p> <p>Pre-ordering Inquiry Interface<br/> Ordering Interface<br/> Maintenance Interface</p> <p><b>GE-1</b><br/> <math>(\# \text{ Hours Interface and/or System Not Available as Scheduled}) + (\text{Total} \# \text{ Hours Scheduled Availability}) \times 100</math></p> <p><b>GE-2</b><br/> Mean # of Hours Available</p>   |
| Center Responsiveness | Measures the time for the ILEC representative to answer business office calls in provisioning and trouble report centers.                    | <p><math>\geq 95\%</math> within 20 seconds<br/> 100% within 30 seconds</p> <p><b>GE-3</b><br/> <math>\frac{\# \text{ Calls Answered Within Specified Timeframe}}{\text{Total} \# \text{ Calls from CLEC to Center}} \times 100</math></p> <p><b>GE-4</b><br/> <math>\frac{\text{Mean Time to Answer Calls w/o IVR; if IVR} - \text{Mean Time to Answer Calls after the end of IVR}}{\text{Total} \# \text{ Calls from CLEC to Center}} \times 100</math></p> |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## **BILLING (BI)**

| Function                                | Measurement Objective  | Proposed Service Quality Measurement  |
|---|--|---|
| Timeliness of Billing Records Delivered | Measures the timeliness of billing records and wholesale bills (usage, CSRs, service orders, time & materials, adjustments) delivered to CLEC  | <p>99.9% billing records received in <math>\leq 24</math> hours<br/> 100% billing records received in <math>\leq 48</math> hours<br/> <math>\geq 99.95\%</math> wholesale bills received within 10 calendar days of bill date</p> <p><b>BI-1</b><br/> <math>\frac{\# \text{ Billing Records Delivered on time}}{\text{Total \# of Billing Records Received}} \times 100</math></p> <p><b>BI-2</b><br/> Mean Time to Provide <u>Billing</u> Records</p> <p><b>BI-3</b><br/> Mean Time to Deliver Wholesale Bills</p> |
| Accuracy                                | Measures the percentage <i>and mean time</i> of billing records delivered to CLEC in the agreed-upon format and with the complete agreed-upon content (includes time and material and other non-recurring charges) | <p><math>\geq 98\%</math> wholesale bill financially accurate<br/> <math>\geq 99.99\%</math> of all records transmitted</p> <p><b>BI-4</b><br/> <math>\frac{(\# \text{ of Accurate and Complete Formatted Mechanized Bills} , \text{ Total \# Mechanized Bills Received} )}{\text{Total \# Mechanized Bills Received}} \times 100</math></p> <p><b>BI-5</b><br/> <math>\frac{\# \text{ of Billing Records Transmitted Correctly}}{\text{Total \# of Billing Records Received}} \times 100</math></p>                |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## OPERATOR SERVICES AND DIRECTORY ASSISTANCE (DA)

| Function                | Measurement Objective  | Proposed Service Quality Measurement  |
|-------------------------|--|---|
| Average Speed to Answer | Measures the percent and mean time a call is answered by an OS or DA operator in a predefined timeframe. Includes all time from initiation of ringing until the customer's call is answered. | <p>For live agent, 90% of calls answered in 10 seconds.<br/>For Voice Response Unit service, 100% within 2 seconds.</p> <p><b>DA-1</b><br/> <math display="block">\frac{\# \text{ Calls Answered Within "x" seconds}}{\text{Total DA Calls}} \times 100</math> <i>where "x" equals 2 or 10 seconds</i></p> <p><b>DA-2</b><br/> <i>DA Mean Time To Answer</i></p> <p><b>OS-1</b><br/> <math display="block">\frac{\# \text{ Calls Answered Within "x" seconds}}{\text{Total OS Calls}} \times 100</math> <i>where "x" equals 2 or 10 seconds</i></p> <p><b>OS-2</b><br/> <i>OS Mean Time To Answer</i></p> |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## NETWORK PERFORMANCE (NP)

| Function                   | Measurement Objective  | Proposed Service Quality Measurement   |
|----------------------------|--|--|
| Network Performance Parity | Compares ILEC performance distribution for its own customers to ILEC performance distribution for CLEC customers. Measures the deviation from supplier service performance distribution for each metric specified. | <p>Deviation <math>\leq 0.10\%</math> from supplier service performance distribution:</p> <p>Transmission quality:</p> <ul style="list-style-type: none"> <li>• Subscriber Loop Loss</li> <li>• Signal to Noise Ratio</li> <li>• Idle Channel Circuit Noise</li> <li>• Loops-Circuit Balance</li> <li>• Circuit Notched Noise</li> <li>• Attenuation Distortion</li> </ul> <p>Speed of Connection:</p> <ul style="list-style-type: none"> <li>• Dial Tone Delay</li> <li>• Post Dial Delay</li> <li>• Call Completion/ Delivery Rate</li> </ul> <p>Reliability Requirements: (For TSR Only)</p> <ul style="list-style-type: none"> <li>• Network incidents affecting &gt; 5000 blocked calls</li> <li>• Network incidents &gt; 100,000 blocked calls</li> </ul> <p>Statistical comparison based on the Mean ILEC Customer Experience and standard deviation from this mean, the Mean CLEC Customer Experience and standard deviation from this mean, and the number of observations used to determine these means.</p> <p><b>NP-1</b><br/>           (Mean ILEC customer experience - Mean CLEC customer experience) + Mean ILEC customer experience x 100<br/> <i>Deviation between ILEC performance for ILEC and CLEC customers must be less than 0.10%.</i></p> |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## INTERCONNECT / UNBUNDLED ELEMENTS AND COMBOS (IUE)

| Function                         | Measurement Objective   | Proposed Service Quality Measurement  |
|----------------------------------|---|---|
| Availability of Network Elements | Measures the availability of network elements (e.g. signaling link transport, SCPs/ Databases, & loop combinations) | <p>Loop Combo availability 100%</p> <p>Signaling Link Transport Unavailability:</p> <ul style="list-style-type: none"> <li>A-Link: <math>\leq 1</math> min per year</li> <li>D-Link: <math>\leq 1</math> sec per year</li> <li>SCPs/Databases: <math>\leq 15</math> min per year</li> <li>SCPs/Databases correctly updated: <math>\geq 99\%</math> in <math>\leq 24</math> hrs</li> </ul> <p><b>IUE-1</b><br/> <math display="block">\frac{\# \text{ minutes Loop unavailable}}{\text{Total \# minutes}} \times 100</math></p> <p><b>IUE -2</b><br/> <math display="block">\frac{\# \text{ minutes A-link available during "x" years}}{\text{"x" years}}</math></p> <p><b>IUE-3</b><br/> <math display="block">\frac{\# \text{ seconds D-link unavailable during "x" year}}{\text{"x" year}}</math> <p>Where <math>x \leq</math> or <math>\geq</math> year. After year, monthly reporting should be for a rolling year.</p> <p><b>IUE-4</b><br/> <math display="block">\frac{\# \text{ Database Records Correctly Updated}}{\text{Total \# Update Requests Received by ILEC}} \times 100</math></p> <p><b>IUE-5</b><br/> <math display="block">\frac{(\# \text{ Database Records Updated within 24 hours of Update Request Receipt})}{(\text{Total \# Database Update Requests Received})} \times 100</math></p> </p> |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## INTERCONNECT / UNBUNDLED ELEMENTS AND COMBOS (IUE) (con'd)

| Function                        | Measurement Objective   | Proposed Service Quality Measurement   |
|---------------------------------|---|--|
| Performance of Network Elements | Measures the performance of network elements (e.g. LIDB, routing to CLEC OS/DA platforms, 800, AIN) | <p><b>Example:</b></p> <ul style="list-style-type: none"> <li>• LIDB reply rate to all query attempts <math>\geq 99.95\%</math></li> <li>• LIDB query time-out <math>\leq 0.05\%</math></li> <li>• Unexpected data values in replies for all LIDB queries <math>\leq 1\%</math></li> <li>• % of LIDB queries return a missing customer record = 0%</li> <li>• Group troubles in all LIDB queries <math>\leq 0.5\%</math></li> </ul> <p><b>Delivery to OS platform:</b><br/> Mean Post Dial Delay for "0" calls from LSO to CLEC OS platform <math>\leq 2</math> seconds PDD for "0+" calls with 6 digit analysis from LSO to CLEC OS platform: <math>95\% \leq 2.0</math> sec; Mean <math>\leq 1.75</math> sec<br/> Percent of call attempts to CLEC OS Platform that were blocked <math>\leq 0.1\%</math></p> <p><b>IUE-6</b><br/> <math>(\# \text{ LIDB}   \text{ or } 800 \text{ or AIN or } n   \text{Query Replies Received by CLEC}) + (\text{Total } \# \text{ LIDB}   \text{ or } 800 \text{ or AIN or } n   \text{Queries Received by ILEC}) \times 100</math></p> <p><b>IUE-7</b><br/> <math>(\# \text{ LIDB}   \text{ or } 800 \text{ or AIN or } n   \text{time-out responses received by CLEC}) + (\text{Total } \# \text{ LIDB}   \text{ or } 800 \text{ or AIN or } n   \text{Queries Received by ILEC}) \times 100</math></p> <p><b>IUE-8</b><br/> <math>(\# \text{ LIDB}   \text{ or } 800 \text{ or AIN or } n   \text{Query Replies with unexpected data values received by CLEC}) + (\text{Total } \# \text{ LIDB Queries Received by ILEC}) \times 100</math></p> |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## INTERCONNECT / UNBUNDLED ELEMENTS AND COMBOS (IUE) (con'd)

| Function | Measurement Objective | Proposed Service Quality Measurement  |
|----------|-----------------------|---|
|          |                       | <p><b>IUE-9</b><br/> <math display="block">\left( \frac{\# \text{ LIDB} \mid \text{ or } 800 \text{ or AIN or } n \mid \text{ Query Replies missing customer record received by CLEC}}{\text{Total } \# \text{ LIDB} \mid \text{ or } 800 \text{ or AIN or } n \mid \text{ Queries received by ILEC}} \right) \times 100</math></p> <p><b>IUE-10</b><br/> <math display="block">\left( \frac{\text{Cumulative Total } \# \text{ Post Dial Delay Seconds experienced on "0" calls from LSO to CLEC OS platform}}{\text{Total } \# \text{ "0" calls from LSO to CLEC OS platform}} \right)</math></p> <p><b>IUE-11</b><br/> <math display="block">\left( \frac{\text{Cumulative Total } \# \text{ Post Dial Delay Seconds experienced on "0+" calls with 6 digit analysis from LSO to CLEC OS platform}}{\text{Total } \# \text{ "0+" calls with 6 digit analysis from LSO to CLEC OS platform}} \right)</math></p> <p><b>IUE-12</b><br/> <math display="block">\left( \frac{\# \text{ of "0+" calls with 6 digit analysis from LSO to CLEC OS platform that have Post Dial Delay } \leq 2 \text{ seconds}}{\text{Total } \# \text{ "0+" calls with 6 digit analysis from LSO to CLEC OS platform}} \right)</math></p> <p><b>IUE-13</b><br/> <math display="block">\left( \frac{\# \text{ Blocked Call Attempts to CLEC OS Platform}}{\text{Total } \# \text{ Call Attempts to CLEC OS Platform}} \right) \times 100</math></p> |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## FORMULAS QUICK REFERENCE GUIDE

| Metric No.                       | Formula   |
|----------------------------------|---|
| <b>PRE-ORDER</b>                 |   |
| PO-1                             | $\frac{\text{\# of Responses Received on Time}}{\text{Total \# of Queries Sent}} \times 100$  |
| PO-2                             | Mean Cycle Time   |
| <b>ORDERING AND PROVISIONING</b> |   |
| OP-1                             | $\frac{\text{\# of Orders Completed on Time}}{\text{Total \# of Order Completed}} \times 100$   |
| OP-2                             | Mean Completion Interval  |
| OP-3                             | $\frac{\text{\# of Orders Completed w/o Error}}{\text{Total \# of Orders Sent}} \times 100$   |
| OP-4                             | $\frac{[\text{\# of C-FOCs Returned in } \leq 4 \text{ hours} + (\text{Total \# of Orders Sent} - \text{Syntax Rejects Returned})]}{\text{Total \# of Orders Sent}} \times 100$ |
| OP-5                             | Mean Time to Return FOC   |
| OP-6                             | $\frac{[\text{\# of D-FOCs Returned in } + (\text{Total \# of Orders Sent} - \text{Rejects Returned})]}{\text{Total \# of Orders Sent}} \times 100$                             |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

|                                    |  |       |
|------------------------------------|--|-------|
| <b>OP-7</b>                        | Mean Time to Return <i>D-FOCs</i>  |       |
| <b>OP-8</b>                        | (# of <i>Syntax</i> Rejects Returned in $\leq 15$ seconds) +<br>(Total # of <i>Syntax</i> Rejects Returned)            | x 100 |
| <b>OP-9</b>                        | Mean Time to Return Rejects  |       |
| <b>OP-10</b>                       | <i>Jeopardies Returned within 70% of allotted order time + Total number Jeopardies Returned</i>                        |       |
| <b>OP-11</b>                       | (# of Completions Returned in $\leq 30$ minutes) +<br>(Total # Completed Orders)                                       | x 100 |
| <b>OP-12</b>                       | Mean Time to Return Completion   |       |
| <b>OP-13</b>                       | Jeopardies<br>Total C-FOCs - Total Rejects   |       |
| <b>OP-14</b>                       | (# of Orders Held for $\geq x$ days) +<br>(Total # of Orders Sent to ILEC<br>in past x days )                          | x 100 |
| <b>OP-15</b>                       | Mean Time of Orders Held Prior<br>to Completion  |       |
| <b><i>MAINTENANCE / REPAIR</i></b> |  |       |
| <b>MR-1</b>                        | (# of Troubles Restored within x hours +<br>Total # Troubles)<br>where "x" = 2,3,4,8,16 or 24 "running<br>clock" hours | x 100 |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

|                |   |       |
|----------------|---|-------|
| <b>MR-2</b>    | <u>Total # of Trouble Minutes</u><br>Total # of Trouble Reports   |       |
| <b>MR-3</b>    | # of telephone lines reporting $\geq 2$ troubles<br>in the current report months +<br>Total # of troubles in current<br>report months |       |
| <b>MR-4</b>    | <u># of Initial &amp; Repeated Trouble Reports per exchange per month</u><br>Total # of Lines per exchange                            | x 100 |
| <b>MR-5</b>    | <u># Customer Trouble Appointments Met</u><br>Total # Customer Trouble Appointments   | x 100 |
| <b>GENERAL</b> |   |       |
| <b>GE-1</b>    | (# Hours Interface and/or System Not<br>Available as Scheduled) + (Total # Hours<br>Scheduled Availability)                           | x 100 |
| <b>GE-2</b>    | Mean # of Hours Available   |       |
| <b>GE-3</b>    | <u># Calls Answered within Specified Timeframe</u><br>Total # Calls from CLEC to Center   | x 100 |
| <b>GE-4</b>    | Mean Time to Answer Calls w/o IVR;<br>If IVR, Mean Time to Answer Calls after<br>end of IVR   |       |
| <b>BILLING</b> |   |       |
| <b>BI-1</b>    | <u># Billing Records Delivered on Time</u><br>Total # of Billing Records Received   | x 100 |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

|  |   |       |
|--|---|-------|
| <b>BI-2</b>  | Mean Time to Provide Billing Records  |       |
| <b>BI-3</b>  | Mean Time to Deliver Wholesale Bills  |       |
| <b>BI-4</b>  | (# of Accurate & Complete Formatted<br>Mechanized Bills + Total # Mechanized<br>Bills Received)       | x 100 |
| <b>BI-5</b>  | <u># of Billing Records Transmitted Correctly</u><br>Total # of Billing Records Received              | x 100 |
| <b><i>DIRECTORY ASSISTANCE AND OPERATOR SERVICES</i></b> |   |       |
| <b>DA-1</b>  | <u># Calls Answered within "x" seconds</u><br>Total DA Calls<br>where "x" equals 2 or 10 seconds      | x 100 |
| <b>DA-2</b>  | DA Mean Time to Answer  |       |
| <b>OS-1</b>  | <u># Calls Answered within "x" seconds</u><br>Total OS Calls<br>where "x" equals 2 or 10 seconds      | x 100 |
| <b>OS-2</b>  | OS Mean Time to Answer  |       |
| <b><i>NETWORK PERFORMANCE</i></b>                        |   |       |
| <b>NP-1</b>  | (Mean ILEC customer experience - Mean<br>CLEC customer experience) + Mean ILEC<br>Customer Experience | x 100 |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

## **INTERCONNECTION / UNBUNDLED ELEMENTS AND COMBOS**

|              |  |       |
|--------------|--|-------|
| <b>IUE-1</b> | <u># Minutes Loop available</u><br>Total # Minutes   | x 100 |
| <b>IUE-2</b> | <u># Minutes A-link unavailable during x years</u><br>x years<br>(where "x" < or > 1 year after first year, monthly reporting<br>should be for a rolling year.   |       |
| <b>IUE-3</b> | <u># Seconds D-link unavailable during x years</u><br>x years  |       |
| <b>IUE-4</b> | <u># Database Records Correctly Updated</u><br>Total # Update Requests Received by ILEC  | x 100 |
| <b>IUE-5</b> | (# Database Records Updated within 24 hrs.<br>of Update Request Received ) ÷ (Total #<br>Database Update Requests Received)                                      |       |
| <b>IUE-6</b> | (# LIDB [or 800 or AIN or n] Query Replies<br>Received by CLEC) ÷ (Total # LIDB [or 800 or<br>AIN or n] Queries Received by ILEC                                 | x 100 |
| <b>IUE-7</b> | (# LIDB [or 800 or AIN or n] Time-Out<br>Responses Received by CLEC) ÷ (Total # LIDB<br>[or 800 or AIN or n] Queries Received by ILEC)                           | x 100 |
| <b>IUE-8</b> | (# LIDB [or 800 or AIN or n] Query Replies<br>with Unexpected Data Values Received by CLEC) ÷<br>(Total # LIDB [or 800 or AIN or n] Queries<br>Received by ILEC) | x 100 |

# LCUG Service Quality Measurements (SQMs)

ASSUMPTION: OSS FULLY IMPLEMENTED BY ILEC

|               |   |       |
|---------------|---|-------|
| <b>IUE-9</b>  | (# LIDB [or 800 or AIN or n] Query Replies Missing Customer Record Received by CLEC) + (Total # LIDB [or 800 or AIN or n] Queries Received by ILEC)   | x 100 |
| <b>IUE-10</b> | (Cumulative Total # Post Dial Delay Seconds experienced on "0" calls from LSO to CLEC OS platform) + (Total # "0" calls from LSO to CLEC OS platform)   |       |
| <b>IUE-11</b> | (Cumulative Total # Post Dial Delay Seconds experienced on "0+" calls with 6-digit analysis from LSO to CLEC OS platform) + (Total # "0+" calls with 6-digit analysis from LSO to CLEC OS platform) |       |
| <b>IUE-12</b> | (# of "0+" calls with 6-digit analysis from LSO to CLEC OS platform that have Post Dial Delay $\leq$ 2 seconds) + (Total # "0+" calls with 6-digit analysis from LSO to CLEC OS platform)           |       |
| <b>IUE-13</b> | <u># Blocked Call Attempts to CLEC OS Platform</u><br>Total # Call Attempts to CLEC OS Platform   | x 100 |